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STANDARD FORM NO. 64

Office Memoranaum • UNITED STATES GOVERNMENT

TO : The Files - RD-103, Task Order 8 DATE: 28 November 1958

FROM :

SUBJECT: Joint Conference Report, AS-6

1. On 19 November 1958 a joint conference was held at to discuss the progress of the AS-6 program. Participating in discussions concerning this project were:

Lt. Col. Guveren Anderson - AEC
Major George Ogburn - AEC

2. reported that the subcontractors, the and the were on time in their work and that the program was progressing normally at He pointed out that the power amplifier of the field unit is the stage requiring the most work. He said that monel had been selected as the outside packaging material. The use of clevite ceramic resonant filters is being investigated in the field unit to lower the receiver drain and insure higher reliability. The base station components, said, are completely on schedule. said that a test of the antenna array to be used with the AS-6 field unit was critically needed, and requested that arrangements be made for extensive antenna testing by no later than January. He recommended that permission be obtained from the Air Force or CAA to have take a 51J receiver to a site about 1500 miles from Los Angeles and spend a few days observing signals from various types of antennas which would be set up at The outcome of this test affects the design of the antenna matching circuits, according to and is considered of the greatest priority to He also requested that we obtain frequency clearance on 6 frequencies in the 3 to 13 mc range for these tests, in which would use a 1 kilowatt CW transmitter at Los Angeles.

3. said that a prototype of his equipment had been completed and operational tests conducted. The results of these tests were encouraging and he felt that no serious problem remained in his area of activity. (Certain technical questions regarding the environment in which his collector will have to work have been referred to of TSS who was out of town and unable to attend this meeting.)

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4. [redacted] announced that the operational sites for the two units which we hope to install in the fall of 1959 have been tentatively selected. He said that one site was a typically arctic climate with year-round permafrost, and extremely low air and ground temperatures. The other has permafrost for part of the year only, is damp, windy, and rainy, and has an average temperature of about 30° F. Detailed temperature profiles on each site will be furnished to the contractors as soon as they became available. [redacted] also said that it was desired to run a full scale operational test in April of next year, during which the transmitter and power supply would be buried and interrogated from a distant base station repeatedly, in order to establish their reliability. It is understood that separate operational tests of the collector system will be arranged in suitable locations by [redacted] pointed out that ten transmit and ten receive frequencies must be selected as soon in advance as possible of the April operational test.

5. At this point, no further policy discussions were held and [redacted] the project engineer for the ASC power supply program, joined the meeting. [redacted] described the efforts his company has made in its "crash" program to develop a suitable power supply for the AS-6. The [redacted] is furnishing a thermoelectric generator to [redacted] if certain patent difficulties regarding the purchase order can be straightened out. He said that it was most important that he know the ground temperature as soon as possible and asked if it were feasible to bury the power supply at a depth greater than 6" in order to attain a more constant environmental temperature. The most efficient form factor for his power supply, he said, is a cube, and an 18" hole will have to be dug anyway in order to place the top of the supply 6" below the surface of the ground. [redacted] said that another group within the Agency was investigating the possibility of making a hole in permafrost with chemical or explosive devices. [redacted] said that, because of the large amount of promethium 147 which he now expected to use to meet our power requirements, a possible radiation hazard existed with the power supply. He said, however, that a few extra pounds of case material would reduce it substantially.

6. Detailed discussions regarding the exact power requirements of the [redacted] The requirements of both the collector and transmitter appear to have been lowered, since the Melpar unit now needs a basic 2 milliampere continuous drain instead of the 10 milliamperes originally allotted it. [redacted] has eliminated the crystal oven from the field unit and feels that it will have no continuous drain whatever since the [redacted] timer will apparently be wound during one-per-hour bursts of current.

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7. At a conference held at on 21 November 25X1
the details of the circuitry which will join the collector 25X1
to the transmitter were thoroughly discussed. agreed 25X1
to provide with an alert signal on a separate line, at least
80 milliseconds prior to the first clock pulse. This alerting signal
will be a negative going 10 VDC level change and will serve to ready
the collector for a transmission. Its supply will be adequate to
provide 15 ma to close a relay in the box. During a discussion 25X1
of the CLEAR signal to be provided by (upon command by the
base station), it was decided that would furnish its own clock 25X1
pulses to clear its memory and that the CLEAR signal would consist
merely of a change in DC level, similar to the alert signal but on
a separate line. It was decided that the unit would be 25X1
delivered with a five foot unterminated cable and that would 25X1
select a suitable water-proof connector for it. The number of wires
in this cable was decided upon. A listing of the cable functions is
noted here for purposes of record:

1. Alert line
2. Clock line
3. Information line
4. Stop line
5. Clear line
6. System ground
7. + 14 VDC
8. + 7 VDC
9. - 7 VDC
10. -14 VDC
11. Panic
12. Reference Signal (if used)
13. Spare
14. Spare
15. Spare

25X1

25X1